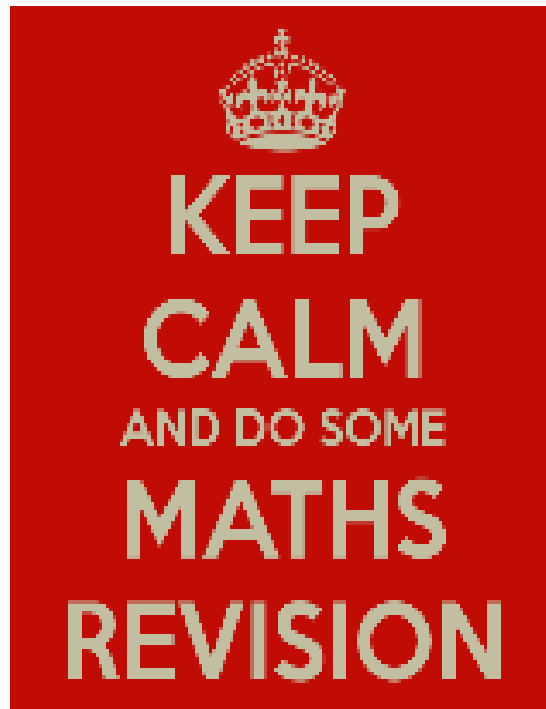


**Maths Revision Booklet**

**Year 6**

Name: \_\_\_\_\_ Class: \_\_\_\_\_



**Maths Revision**



<b>Million</b>	1 000 000	six zeros
	750 000	$\frac{3}{4}$ million
	500 000	$\frac{1}{2}$ million
	250 000	$\frac{1}{4}$ million

$$1.0 = 1 = \frac{100}{100} = 1 \text{ whole}$$

$$0.75 = \frac{3}{4} = \frac{75}{100} = 75\%$$

$$0.50 = \frac{1}{2} = \frac{50}{100} = 50\%$$

$$0.25 = \frac{1}{4} = \frac{25}{100} = 25\%$$

Hundreds	Tens	Ones	tenths	hundredths
6	3	2	1	7

X 10      move ● one place →      6321.7

X 100      move ● two places →      63217.0

X 1000      move ● three places →      632170.0

÷ 10      move ● one place ←      63.217

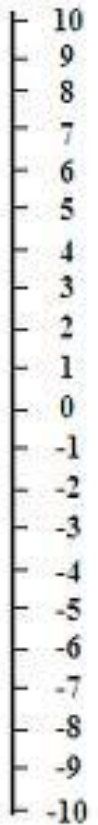
÷ 100      move ● two places ←      6.32170

÷ 1000      move ● three places ←      0.6321700

1    2    3    4    down ↓  
 5    6    7    8    9    up ↑



To 10	To 100	To 1000
$\underline{7}8 \rightarrow 80$	$\underline{15}2 \rightarrow 200$	$\underline{152}3 \rightarrow 2000$
$\underline{7}2 \rightarrow 70$	$\underline{11}7 \rightarrow 100$	$\underline{137}1 \rightarrow 1000$



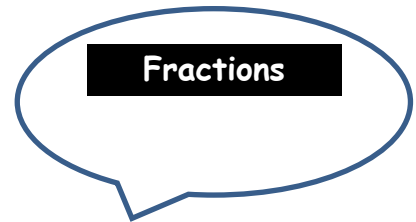
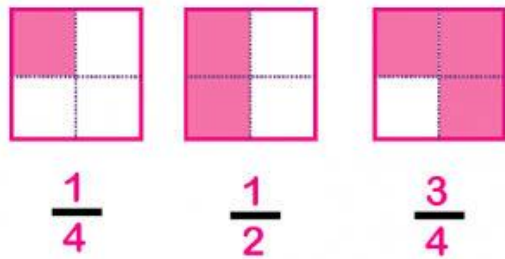
Numbers above 0 (zero) are positive

Numbers below 0 (zero) are negative

Draw thermometer and include both positive and negative numbers.

To find the difference between two negative numbers, subtract the numbers, e.g. the difference between -4 and -3 = 1

To find the difference between a negative and a positive number, add the numbers, e.g. the difference between -4 and 3 = 7



= numerator = number of pieces coloured  
 = denominator = number of pieces altogether

**Equivalent fractions**

To enlarge, multiply numerator (top) and (denominator) bottom by the same number

$$\begin{array}{ccc} \frac{1}{2} & \xleftrightarrow{\times 2} & \frac{2}{4} \\ \frac{1}{2} & \xleftrightarrow{\times 2} & \frac{2}{4} \end{array}$$

**Simplify fractions**

To simplify, divide numerator (top) and (denominator) bottom by the same number

$$\begin{array}{ccc} \frac{6}{12} & \xleftrightarrow{\div 2} & \frac{1}{2} \\ \frac{6}{12} & \xleftrightarrow{\div 2} & \frac{1}{2} \end{array}$$

**Fractions of amounts**

To find  $\frac{1}{3}$  of 15  $\rightarrow$  Divide by the denominator (bottom). How many 3s in 15 = 5

To find  $\frac{2}{3}$  of 15?  $\rightarrow$  First, divide by the denominator (bottom), then multiply by the numerator (top)  $15 \div 3 = 5 \rightarrow 5 \times 2 = 10$

### Adding and subtracting fractions

Like fractions are fractions with the same denominator. You can add and subtract like fractions easily - simply add or subtract the numerators and write the answer over the common denominator.

Before you can add or subtract fractions with different denominators, you must first find equivalent fractions with the same denominator, like this:

1. Find the lowest common multiple (LCM) of both numbers.
2. Rewrite the fractions as equivalent fractions with the LCM as the denominator.
3. Now add the numerators

### Multiplying and dividing fractions

When **multiplying fractions by whole numbers**, do not change to a common denominator. Multiply the numerator by the whole number.

When **multiplying fractions**, do not change to a common denominator. Multiply the numerator by the numerator and the denominator by the denominator.

When **dividing fractions by a whole number**, multiply the whole number by the denominator.

When **dividing a fraction by a fraction**, turn the second fraction upside down and then multiply the numerator by the numerator and the denominator by the denominator.

**Percentage means out of 100**

10% of 40 =  $40 \div 10 = 4$

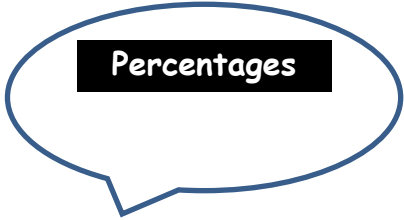
20% of 40 =  $40 \div 10 = 4$ , then multiply by 2

30% of 40 =  $40 \div 10 = 4$ , then multiply by 3

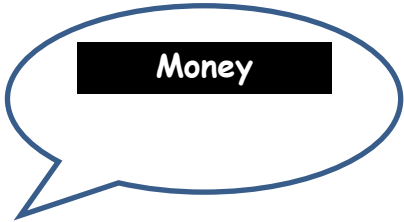
50% of 40 = half of 40 = 20

25% of 40 = half and half again = 10

75% of 40 = half and half again and add those amounts, so  $20 + 10 = 30$

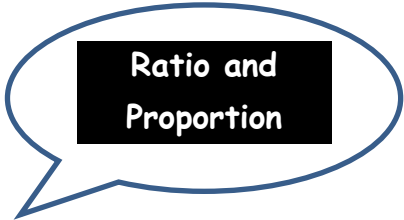


£1.63 or 163p, do not put £ and p together.



**Ratio** = part against part    3:5

**Proportion** = part of a whole     $\frac{3}{8}$



Calculate what is in brackets first.

$$6 \times (7-3) =$$

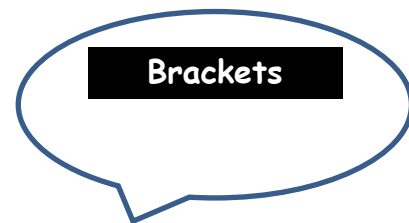
$$6 \times 4 = 24$$

**BODMAS:** Brackets

Order

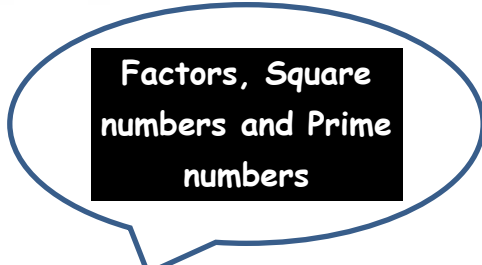
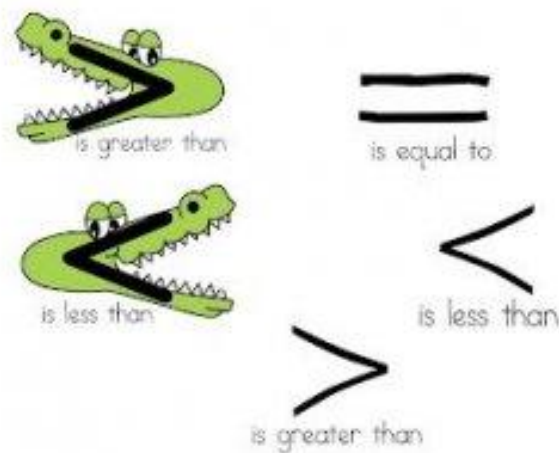
Division / Multiplication

Addition / Subtraction



< = less than      3 < 6

> = more than      12 > 7



**Factor:**

A whole number that exactly divides another whole number, e.g. 3 is a factor of 24 because  $3 \times 8 = 24$ .

**Square Number:**

A whole number that is the square of a whole number,

e.g.  $2^2 = 4$  so 4 is a square number

e.g.  $3^2 = 9$  so 9 is a square number

**Prime Number:**

A prime number can only be divided by 1 and itself. 1 is not a prime number. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31 etc. are all prime numbers.

**Formulae:**

Finding the formula for sequences:

Examples:

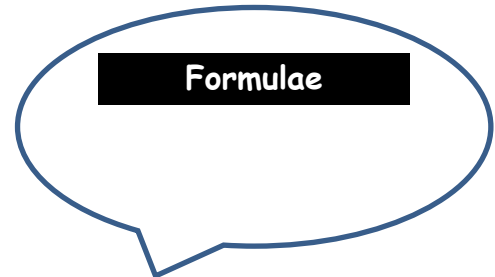
Square numbers: 1, 4, 9, 16, 25...

Double the previous term: 1, 2, 4, 8, 16...

Double the previous term and add 2: 1, 4, 10, 22, 46...

Add 6 to the previous term: 1, 7, 13, 19, 25, 31...

Subtract 3 from the previous term: 10, -7, 4, 1, -2, -5...

**Nth Term:**

Look at pattern and find the difference in the sequence.

<b>Term</b>	1	2	3	4	5	6
<b>Sequence</b>	4	7	10	13	16	19
<b>Difference</b>	+3	+3	+3	+3	+3	+3

**Formula:  $an+b$** 

a is the difference

n is the term number (1,2,3,4 etc)

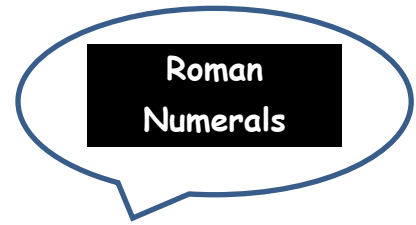
b is the final step to make the equation correct

You can check it:  $an+b =$

The difference is 3, so  $3n + b$

Try it:  $3 \times 2 = 6$ , but the second term is 7 so we have to add 1

The formula for this sequence is  $3n+1$



1	I	21	XXI	41	XLI	61	LXI	81	LXXXI
2	II	22	XXII	42	XLII	62	LXII	82	LXXXII
3	III	23	XXIII	43	XLIII	63	LXIII	83	LXXXIII
4	IV	24	XXIV	44	XLIV	64	LXIV	84	LXXXIV
5	V	25	XXV	45	XLV	65	LXV	85	LXXXV
6	VI	26	XXVI	46	XLVI	66	LXVI	86	LXXXVI
7	VII	27	XXVII	47	XLVII	67	LXVII	87	LXXXVII
8	VIII	28	XXVIII	48	XLVIII	68	LXVIII	88	LXXXVIII
9	IX	29	XXIX	49	XLIX	69	LXIX	89	LXXXIX
10	X	30	XXX	50	L	70	LXX	90	XC
11	XI	31	XXXI	51	LI	71	LXXI	91	XCI
12	XII	32	XXXII	52	LII	72	LXXII	92	XCII
13	XIII	33	XXXIII	53	LIII	73	LXXIII	93	XCIII
14	XIV	34	XXXIV	54	LIV	74	LXXIV	94	XCIV
15	XV	35	XXXV	55	LV	75	LXXV	95	XCV
16	XVI	36	XXXVI	56	LVI	76	LXXVI	96	XCVI
17	XVII	37	XXXVII	57	LVII	77	LXXVII	97	XCVII
18	XVIII	38	XXXVIII	58	LVIII	78	LXXVIII	98	XCVIII
19	XIX	39	XXXIX	59	LIX	79	LXXIX	99	XCIX
20	XX	40	XL	60	LX	80	LXXX	100	C

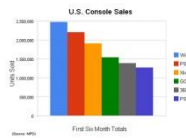
**Data Handling**

**Mean:** (the hardest and therefore, the mean)

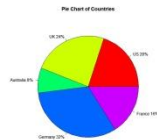
Add all the numbers together and divide by the amount of numbers in the set.

$$6 + 3 + 9 = 18, \quad 18 \div 3 = 6$$

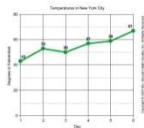
**Bar Chart:** looks like bars



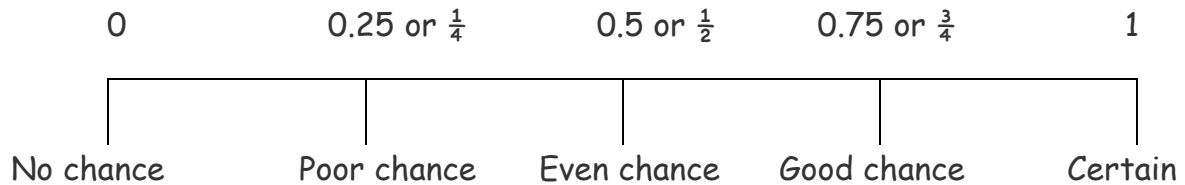
**Pie Chart:** looks like pie



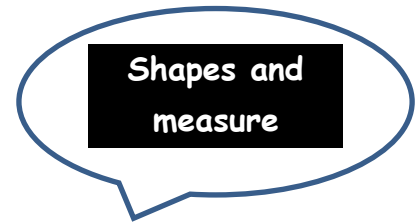
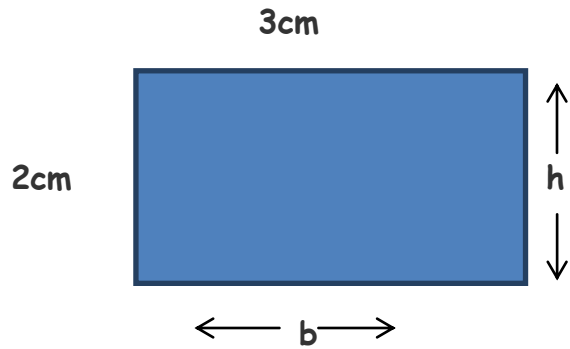
**Line Graph:** looks like a line



**Probability:**



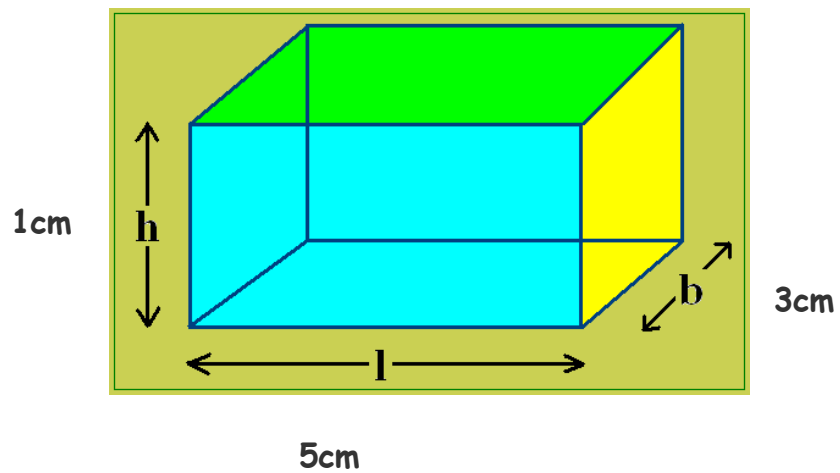
Area: an amount of surface



$$B \times h = \text{area}^2$$

$$3\text{cm} \times 2\text{cm} = 6\text{ cm}^2$$

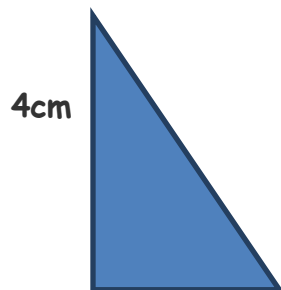
Volume: an amount of space occupied by a solid



$$l \times b \times h = \text{volume}^3$$

$$1\text{cm} \times 5\text{cm} \times 3\text{cm} = 15\text{cm}^3$$

Area of a triangle: (a triangle is half a quadrilateral)



$$\frac{1}{2} b \times h = \text{area}^2$$

$$\frac{1}{2} (3 \times 4) = 6\text{ cm}^2$$

3cm

**Perimeter:** the length of a boundary of a plane shape (all around the outside of the shape)



$$4\text{cm} + 2\text{cm} + 4\text{cm} + 2\text{cm} = 12\text{cm}$$

$$\text{Or: } (4\text{cm} \times 2) + (2\text{cm} \times 2) = 12\text{cm}$$

2D shapes: polygon → poly = many (sides)

Triangle = 3 sides



Others:

Heptagon = 7 sides



Quadrilateral = 4 sides



Nonagon = 9 sides



Pentagon = 5 sides



Decagon = 10 sides



Hexagon = 6 sides



Octagon = 8 sides



Square



Rectangle



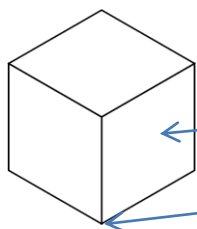
Parallelogram



Trapezium



Kite



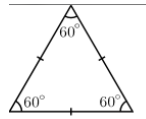
Edge

Face

Vertex (more vertices)

**Triangles:**

Equilateral triangle: 3 equal sides  
3 equal angles



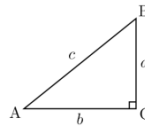
Isosceles triangle: 2 equal sides  
2 equal angles



Scalene triangle: all 3 sides are different  
all 3 angles are different



Right angled triangle: 1 right angle

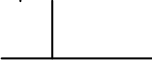


**Lines:**

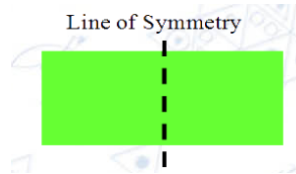
 = parallel

 = horizontal

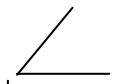

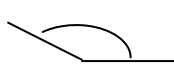
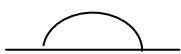
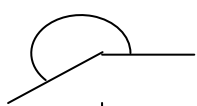
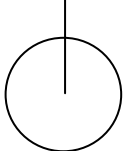
 = vertical

 = perpendicular

**Symmetry:**



**Angles:**

	acute angle	=	less than 90°	
	right angle	=	90°	$\frac{1}{4}$ turn
	obtuse angle	=	more than 90° less than 180°	
	straight line	=	180°	$\frac{1}{2}$ turn
	reflex angle	=	more than 180°	
			270°	$\frac{3}{4}$ turn
			360°	1 whole turn

**Time:**

24 hour clock or am/pm

1.30 pm = 13:30

10.25 am = 10:25

**Measures:**

1 meter = 1000mm = 100cm

1km = 1000m

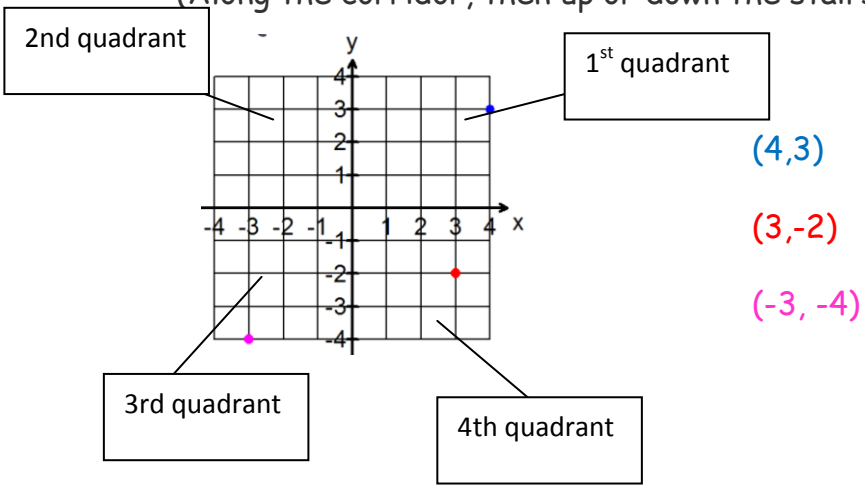
1kg = 1000g

1L = 1000ml = 100cl

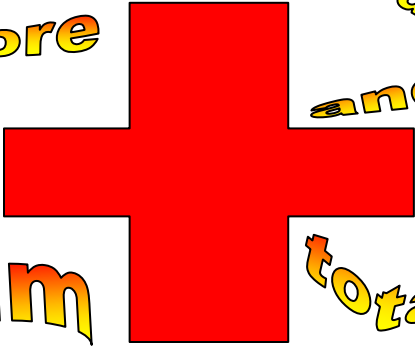
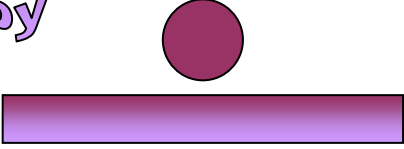


**Co-ordinates:** ( , )

First horizontal  $\longleftrightarrow$  , then vertical  $\updownarrow$

(Along the corridor, then up or down the stairs).



Mathematical Vocabulary:

<h1>Addition</h1> <p>together increase more and sum total add plus</p> 	<h1>Division</h1> <p>divided by share divisible by share equally group divide</p> 
<h1>Multiplication</h1> <p>multiply product lots of groups of times times table multiplied by</p> 	<h1>Subtraction</h1> <p>fewer decrease difference between reduce take subtract away take from minus</p> 

**Revision Notes**